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I'm with the Green Electronics Council.  I'd like to start by explaining a little bit about what that is.   That's a private, non-profit organization, an NGO, that was recently established around the core mission running the EPEAT program.  I'm going to describe near the end of my presentation the EPEAT program and what that is.  In addition the Green Electronics Council works on other issues relative to environment and electronics. And our style of work is to work collaboratively with all of the stakeholders to work with industry to work with other stakeholders, to find the common solutions that do indeed move us toward more environmental responsibilities in electronics.

So that's just a little bit about the style that we bring.  I will admit to you, to begin here, a bias that I have -- that bias is that the marketplace is far and away the best place to influence the environmental design of electronic products.  Manufacturers pay far more attention to the marketplace than to anything else.  And the marketplace is indeed the best place for us to work in. It's not the only place for us who are concerned about environmental electronics.  Indeed, and I do not want to disparage those who work in the regulatory arena, but I would make note for example, I'll just give a little example.  The ROHS directive.

First of all, Rick (Goss) was absolutely right.  The electronics industry is moving far beyond the requirement of the ROHS directive.  But the ROHS directive itself has provisions in it that those of us who are concerned most about the environment in all of these matters look upon now and wonder if the right decision was made in Europe.

In fact, there might be some quite damaging results to the environment from the ROHS directive.  Maybe quite is too little.  Some damaging results.  There would have been better ways to achieve the environmental objectives.  The problem is that we will have that ROHS directive, maybe nearly forever.  And that's because how difficult it is to change laws and regulations.

It was a good idea at the time.  We know more now.  We recognize it might not have been quite such a good idea in certain ways, but we can't really change it.  Europe will probably not change it.  At least for years.

With market incentives and market drivers, we can be much more flexible.  We can follow the science and understand the impacts that we're having much better.  And the industry understands that very well and is there to work with us in that way.  So that's my bias that I'll bring to the conversation today.

I'm going to talk about what's happening in the marketplaces as I see it. What are the fundamentals of being green? Environmentally responsible. How those are playing out in the world of standards today. Exactly what we mean by being green. What are the specific things we want to achieve? Three programs in North America that are working toward that through eco label programs - and I will explain what those are - in North America, including EPEAT. I'll probably spend more talking about EPEAT. And the others, and a little bit about a project, the CEC project that we are beginning at the Green Electronics Council beginning now.

So the reality in the U.S., and when this British magazine (on slide) was published, it meant U.S. by "America", I think. The reality in the U.S. marketplace is that green is everywhere. Everybody is trying to be more environmentally responsible, or at least claim that they are being more environmentally responsible, than everybody else.

I just point out to you, some of the rather vague, and maybe not even very truthful, claims that are being made in the marketplace, this is a major problem. This is an example of ecolabels. Ecolabels are programs run by organizations like the Green Electronics Council, or like governmental organizations in many cases, that have a standard and are claiming to designate greener products.

There's a proliferation of these and there's going to be more and more of that that will arise in this age of green. This is a problem. This is a good thing. And this is a problem. And I'll note that EPEAT is on list along with many others.

The core message that I want to bring here is not the only way, in fact maybe not the best way, to move companies who are so terribly concerned, primarily concerned about the integrity of their brand in the marketplace. That's their living, right? Regulation isn't maybe the best way to really move them. When the brand name companies move; Panasonics and the Dells and so on, their entire supply chain moves behind them. Much more slowly, but it does move to accommodate their interests.

So the question is, in a world where everywhere you go is talking about being green, who has the authority to say what is green and how do we really know when green claims are made by individual companies? Can we believe everything that anybody says about how green they are? Well, of course, we can't.

So let's go back to the fundamentals of what green is. First of all, it's based largely on science. I will claim that second point here, I have come to believe from the work that I have been doing that the best way to develop a good understanding of the environmental aspects of any particular product is by putting all the different stakeholders together in a room and to have them talk it through. You have to have the science in the room too, but the science is only one of the players. Science just doesn't tell us exactly what is what. We need the people who have different experiences and different perspectives interplaying with each other. And that gives us the best results. That is the basis of the Green Electronics Council and EPEAT.

We have to know whether it's relevant. Many claims that are made sound good, but really aren't relevant. We have to understand the tradeoffs, and I talk to this question about the European ROHS directive, has definite tradeoffs and it might be that some of the tradeoffs are worse than what we had in the first place.

Then we have to increasingly be able to respond to our increasing knowledge and move the bar up as we're more and more capable as technology advances. And then how do we know what a claim is? Whether a claim is good? Is it substantiated? Is it specific? Is it independently verified? It must be. Does it absolutely must be independently verified? And is it transparent? Can you see what's behind it.

Look at those two computers (on slide). Those are two computers on the market today. Which is the greener? And how do you know? Well, the monitor and the monitor and the keyboard are virtually identical. They may be identical. The computer couldn't be more different. The two computers couldn't be more different from each other by appearance.

You can't really look at it and say that we know exactly. One indeed would say that the first computer, being so much smaller uses less material and is more environmentally responsible. But maybe it can't be dismantled and can't be upgraded or can't be recycled very easily.

We live in a world, the electronics world, it is dominated by standards. Every time a computer engineer, every morning when they get up, they start thinking about the standards they have to follow that day. Standards are what make the world work in the world of electronics. There's a very sophisticated system for developing those standards.

They're the reason that when I pull out my cell phone I can talk with your cell phone that's made by a totally different company that may be in a totally different part of the world. This is a wonderful thing. These standards are developed through a process that involves all of those stakeholders, primarily in that case, the companies and the engineers and the suppliers who get together through a balanced, controlled managed process to come up with a consensus of what's the best way to go in some area that very few of us in this room probably would understand the least about what they're talking about. Very technical issues. They come to the consensus about the best way to go and it's done under a set of international rules that are implemented on the national level.

Why is such a bureaucracy necessary? And believe me, it's a bureaucracy, because we want a level of competitive playing field. Because it protects against one country establishing barriers to trade against another country by using some of these standards to their own selfish interests. And because it delivers products that work.

Here is an example of some, really in truth, really the only three significant areas, maybe I forgot something, but in my recollection this international industrial standard system has been used explicitly for environmental purposes. I bet Rick will find me a couple that I missed on that list. The first, I'm sure most of you heard about the Environmental Management System through the ISO International Standard Body. In that case, in the

ISO 14000 series there are many others that infect the environment. 14001 on Environmental Management Systems is only kind of a flagship of that.

There are a number of standards around internal company management procedures, how they manage their supply chains. Ways that they have reporting come from their suppliers about environmental and other issues related about the product.

Then the final one is the standard that EPEAT created in the last three years, IEEE, it's an international U.S. based standards development organization and 1680 is the number of that standard. You'll hear more about that.

There are many different aspects to this green thing for electronics. It's not just toxic substances. It is toxic substances and hazardous substances indeed, but the use of energy is the product design for proper recycling? Is there a system for recycling and re-using the product? Is that system indeed environmentally responsible? Will the product have a long lifetime? Can it be upgraded? I mean, that's the thing about these electronics. You know, we pull the materials out of the ground, we make a product, we use it for three years, do we just put the materials back in the ground again? Is that a sustainable way to run this high tech world that we're entering into and will be living in for a long time?

No, it's not. We've got to make these products more upgradeable, longer life. The packaging needs to be environmentally friendly, good overall corporate practices. That's the list of the main areas that have to be addressed for true environmental responsibility.

I'm talking about the marketplace. The marketplace is driven by purchasers. Purchasers don't wake up thinking about the environment in the morning. At least not very many do. I'm talking about institutional purchasers. Purchasers who buy for government, purchasers for big business and us as consumers. We don't think first and foremost about the environment. So if we're going to use environment as one of the things we kind of rate products by and make decisions by, we need something real easy that just tells us what's what? What's best?

It's a very complex question, but that, frankly, is what we need. There are three North American ecolabels that I want to touch on quickly as that are intended to do that. I have a list of all the international ecolabels, a lot more than this, these were the North American ones that affect the world of electronics.

I'll start with one that's the longest and the best reputed of the eco labels. It is a single attribute. It focuses on only energy and energy conservation, energy consumption. Indeed a very important attribute, but only one of many. It is managed by the U.S. government though it is used internationally. The EPA and the Department of Energy kind of co-manage that ecolabel. Products are qualified by manufacturers to the requirements of that label. Energy Star has all different kinds of products, it developed specific specifications that have to be met by products and then manufacturers declare that their products do meet that. I'll explain a little bit about how that works.

Launched in '92, they have all of these 35 product categories. There are the main ones that affect the world that we're talking about here as far as product categories. For

example, on computers, it's always undergoing improvement as we know more. Up until just this last year for computers, the standard really only addressed energy conservation of computers in sleep mode. You know, which is where the computer spends most of its time, sleeping off mode or in idle mode. It spends most of its time there and so that's very important, but it didn't address the amount of power that it's while it's being actively used, between our keystrokes and that sort of thing.

That's really important. The new standard now has made a vast improvement on the old standard by adding those more active modes into the analysis of the energy responsibility of the computers that you buy. It's also made the life of the OEMs that makes these products very difficult. Meeting those requirements is going to be very difficult for some kinds of products. I won't go into that too much.

The way that Energy Star works is that they have all these specifications you have to meet and they say what tests you have to run to make sure that you, the manufacturer, meet those specifications. Then the manufacturer does that. And they run those tests and then they say, I'm okay. This product, this product, this product meet the Energy Star requirements. They declare them then to meet the Energy Star requirements. Then the EPA selectively runs tests. They pick one, pick two to do the testing just to make sure that that really is true.

The EPA also monitors the use of the Energy Star label, that's extremely important for the viability of that in the marketplace. And they periodically upgrade the standard itself.

How do you know? Two ways to know. There's a label that goes on the box, goes on the front of the television when you buy it. Sometimes. Not very often. I wish it was more. Sometimes it's on the front, so that you can tell, you and I can tell, if you're a government purchaser, you say, I want an Energy Star, that's it. And they'll only deliver you products that meet those Energy Star requirements. And, by the way, I should mention, that saves money too, right? Don't forget that. It saves the environment, it saves money too. Don't forget about money.

Then secondly you can go to EPA's website and see what products indeed meet Energy Star. Energy Star is used internationally. Some countries have adopted their own slightly different versions but working with Energy Star and it has become a worldwide standard.

The second one I'm going to highlight came out of Canada, or I guess resides in Canada, but really it's being applied quite broadly throughout North American and maybe worldwide. And I bet you that most of the people in this room had heard about Energy Star probably hadn't heard about this one. EcoLogo run by the organization called TerraChoice. It's a fairly new one in terms of reaching outside of Canada. Those of you who are from Canada, you probably know all about it. But those of you who are from the U.S. and Mexico probably haven't.

It's run by a private, for profit organization, in a partnership with Environment Canada, well represented here today. They develop standards. They certify products. And they help to market the products that are certified to the standards.

The certification system, they develop standards through an open public process. They're approved by Environment Canada and then they have what's called third-party certification. They're a little bit different from Energy Star or the EPEAT program in that a product has to be run through and tested by a third party which happens to be this [inaudible] organization in this case, that may be a bit of a problem. But they then say this product does, this product doesn't meet the standard. They decide as an organization. In other words, not the manufacturers and not the consumers, is what we mean by a third party. Not even the consumer or the manufacturer. It's an independent party that makes that decision.

And then they sign a license and pay a bunch of money to be able to use the label in selling their products.

They got lots of products. Cleaning products, all different kinds of things. If you go into a grocery store to buy a cleaner in Canada and you'll see this EcoLogo on the product. They want that EcoLogo to appear all around the world on the more environmentally responsible products. They have the goal of making it really a universally recognized consumer type label.

For office products, that's their product set right now, and you can go on to their website there and see a lot more about their process.

EPEAT - so I run EPEAT. So I'm probably going to tell you a little bit more about EPEAT. EPEAT is a fairly recent creation of us. It's been mentioned a few times at this podium. That stands for the Electronic Product Environmental Assessment Tool. And that's what it is. It's an assessment tool. It makes sure that the product meets environmental standards.

The core purpose of EPEAT is to help institutional purchasers ... whose institutional purchasers? That's governments, that's businesses, that's universities, that's hospitals. Not quite you and I but institutional purchasers buy green products. Know what's Green.

That's simple, easy to use. Here it is. This is green, this is not, sort of a system. Now, you've got to understand that in some cases manufacturers make one set of products for institutions that, that they sell to institutions. And another set of products that they sell to you and I as consumers. In other cases manufacturers don't make that distinction. So you can buy EPEAT products. We can. I do.

We can buy as individuals EPEAT products. And it's on the website to find out what those are in many cases. EPEAT's two things. It's that standard that I talked about that it has about 51 environmental criteria and lays it all out about the system is supposed to work. You have to buy that standard from this organization called IEEE I think it costs seventy-five bucks to buy the standard that the manufacturers buy. You can see a summary of the summary on our website, which I'll have later.

But it is an international and it's an independently adopted open consensus based process standard that was developed by the stakeholders. And then there's the registry. That's the

thing that basically I run. I'm also involved with standard development, as a stakeholder, frankly, but also involved in running the registry.

The registry, manufacturers come to us. They sign up. They pay us their money. They declare their products to the standard and we run verification. So that's what I mean by the registry. The registry is on the web. You can see all the products, there's now seven hundred - and I think it's fifteen. I think it's what it said this morning on the registry, it's always going generally up. Sometimes down.

This is what we address (in EPEAT). That looks familiar to my set of questions that I had up earlier on. These are the environmental characteristics that were found by the stakeholders that participated in developing this standard to be the ones that there are. So these are the categories, there are 51 different criteria within these categories.

Environmentally sensitive materials, that's with ROHS. And ROHS is in there. ROHS is one, you have to conform with ROHS, or compliant with ROHS, that's just one of the criteria. Then we set lower levels for some of the same substances of concern, lower than what ROHS required. It has thresholds that you have to be below in. We kind of took those down by a factor of ten. In some cases say you have to be cleaner than that. And that's the kind of thing that's in there. Material selection, use recycled content or bio-based materials designed for end of life. Is it convenient to take apart? Product longevity, energy conservation. That's where the Energy Star is and some other criteria.

End of life management; you have to provide a recycling service to the customer, the institutional customer that buys the product, you have to take it back, you as the manufacturer, at the end of life. And that take back service has to meet certain environmental requirements. Corporate performance and packaging, those are the things that are included.

We're a three level system, not just on or off but three levels. We have 23 required criteria that get you to bronze. You have to meet each one of those and then we have 28 optional criteria that you can divide up between the other two levels. So if you get half of the 28 criteria sounds like, it kind of varies by products. And some probably just the monitors and that sort of thing. Then you get to be silver and just recently we have had some manufacturers who have started to put gold products on their register. Gold is really a pretty darn high bar but some have been achieving it.

This system has manufacturers really working hard to get their products up to these environmental criteria that have been established and get them on their register. The marketplace works for improving the environmental performance of products. Okay, there it is right now - did I skip one? I'm sorry.

Verification. Creditability of the registry is everything, right? We got to make sure that what the manufacturers say about the products is, in fact, the case. So we run a verification system after they're registered, after the products are registered on the registry to make sure that that is indeed the case.

This (on slide) is what the registry looked like back on December 1st, as I said it's 715 down in the right hand corner today. The number of gold products. You kind of see how they lay out. Those are the categories of products on the left. Desktops, integrated systems, like some of the MacIntosh systems, monitors, notebooks and so on.

These are the participating manufacturers. It looks kind of like Rick's list. Rick's got some different manufacturers on it. It's got some very small manufacturers. This is not just a thing for big manufacturers like Dell and HP. Some of these are very small. But they're selling into government. Or they're selling to businesses, they're saying we want EPEAT only. And some of those are only names that you probably you don't recognize.

The reason that EPEAT has been so successful is because purchasers are indeed using it. Because everything is going green the purchasers are all thinking about, how can I know the difference between a green computer and brown computer? And we told them, trust this. Because we developed the system with all the stakeholders together, the industry says this is a good system, the NGO says this is a good system. Some of them say we should have more too. And that's perfectly good. And they keep pushing us to include more in our system. Purchasers were there at the table too. They said, okay, we understand how it works. It's creditable. It's a good system.

So, you see, you develop - in the process of creating the standard itself, you develop its own credibility. I didn't decide in some room off by myself with a bunch of my friends, we didn't decide what would be there. All the stakeholders together decided what would be there.

The federal government – forty-five billion dollars, I don't even know how much money that is. There's a lot of money involved in EPEAT. The next slide I should have after this is one that says; President George Bush signed an executive order that says that 95 percent of federal government purchasing of computers, has to be off the EPEAT list. That made my day. That was really kind of the bell that said, okay, we have arrived strongly in this market and we will influence a market. All the major manufacturers try to sell to the U.S. government and they have to be EPEAT in order to do that.

We have measured, or actually an independent academic group, developed a tool for measuring, what does all this mean for the environment? What is an EPEAT computer? How is it better for the environment than a non-EPEAT computer? And they did this study and it's very complex because there's all these different ways of environmental protection and all that and those are just some of the huge numbers, $1.2 billion and so on. That's a lot of improvement.

Now that's not due to EPEAT. That's due to the manufacturers improving their products according to, you know, the way that EPEAT kind of measures that. That didn't start with EPEAT. That started really well before EPEAT. And so that's not like, you can't just say, EPEAT changed the world.

Manufacturers are changing the world. We have developed a measuring stick by which manufacturers could really know whether they're going in the, hopefully, right direction or not and get their rewards in the marketplace for doing so.

EPEAT has major challenges ahead of us right now because of our success. Success is one of those things, it's good news and bad news. There are three major ways that EPEAT must and will expand because the market is demanding that we expand. One is new products. We did a study again. Brought the stakeholders together and said, what do you think? What do you think? What do you think? Came up with this list of priorities; imaging devices, that's like printers and, you know, multi function devices and faxes and all that sort of things. Televisions, servers and hand helds will kind of moving through those products as developing standards and getting them into the system.

International use, we're being picked up in many places around the world. And Canada, the national standing offer by which Canadian government purchasers buy specified EPEAT, specifies this EcoLogo label, also that I mentioned. And other countries. Europe it's being widely adopted. And I would suggest, again, going back to that core theme that the market is the best place to incentivize environmental performance. Will Mexico consider that in your government purchasing also? It's an opportunity. I've heard questions asked about how do we know that ROHS is here. Is being met here in Mexico? And that's one very good way that you can do it. Make sure that your government, your institutions are all buying, you know, ROHS compliant products. EPEAT is the way to do that.

Consumer space. We will be in the consumer space shortly. That means, you know, we got to have a recognizable logo that says something because EPEAT is really not a consumer logo. We need something that would appeal to consumers. And we need to make sure that we got consumer products on the registry and that sort of thing.

But obviously if we're going to develop a TV standard, that's all about, that's all about consumers. So I just to mention real briefly before they make me sit down about this project, two projects really, that the Green Electronics Council is doing with the CEC and will be engaged with I hope some of you as we get into the later phases of this project.

I just simplified here greatly, but there are two major aspects to this project with CEC. It's all about cleaner manufacturing and it's all about making sure that that manufacturing is, indeed cleaner, and done well. And the first one has to do with, well, I put it second there, case studies in cleaner production, some tools to help companies, SMEs, Small and Medium sized Enterprises. Develop their production processes to be cleaner.

Then the other one is the one that actually I'm focusing on more which has to do with the supply chain. How do the big manufacturers make sure that the smaller manufacturers that are supplying them really adhere to the kind of standing; ROHS as an example. EPEAT as an example. How do they make sure that system works? And how can the smaller manufacturers of components and such, really be helped to make sure that that whole system works. Because many of them, they don't know how to deal with all these

new regulations and everything that's going on.  How can they get into that game?  So we're going to be coming up with some of those outputs there from that project.

This is the team, a three-nation team.  And Kellerher Environmental.  Remember, Kellerher is our Canadian partner.  Pamela Brody-Heine and myself on the U.S. and then Dr. Roman and in the back row here is our Mexican partner.

So there you go.  There's a little contact information.  Thank you very much.